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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,745	03/08/2001	David John Richardson	DYOUP0211US	8240

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EXAMINER
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SEDIGHIAN, REZA

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/802,745

**Applicant(s)**

RICHARDSON ET AL.

**Examiner**

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. This communication is responsive to applicant's 2/23/2004 amendments in the application of David John Richardson et al. filed 3/8/2001. The amendments have been entered. Claims 1-9 and 13-16 are now pending.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As to claim 14, specification as originally filed does not provide support for the limitation "... a header in a packet-switched system".

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 14, it is not clear what is meant by "the grating decoder is configured to decode a header in a packet-switched system". Specification recites (page 5, lines 10-13) the use of a combination of a decoder grating and nonlinear element such as a semiconductor optical

amplifier or fiber-based nonlinear switch to enhance the correlation contrast and effect further enhanced processing functions such as optical routing, header removal and rewrite, data packet loading. Specification does not clearly describe how the grating decoder is configured to decode a header in a packet switched system??

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Tsuda et al. (Electronics Letters, Vol. 35, No. 14, July 8, 1999, pages 1186-1187).

Regarding claim 16, Tsuda teaches an optical transmitter (fig. 2), comprising: an optical source for generating an optical signal (the laser diode in fig. 2) modulated with a content-bearing signal (the modulator in fig. 2) and having a predictable distortion characteristic induced during modulation of the optical signal (the dispersion of the optical transmission system), wherein the optical signal is modulated by encoding with an electrical encoding signal (the 10 Gbit/s signal, fig. 2); and a superstructure fiber Bragg grating (AWG decoder of fig. 2) incorporating a filtering function (the filter that is connected to the dispersion compensating fiber and to the AWG decoder of fig. 2) to compensate for the distortion characteristic and arranged to process the optical signal to compensate for the distortion characteristic (page 1187, the paragraph related to the experimental setup for spectral encoding and decoding of fig. 2).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 15, and 16 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al. (Journal of Lightwave Technology, vol. 17, No. 10, October 1999, pages 1758-1765) in view of Tsuda et al. (Electronics Letters, Vol. 35, No. 14, July 8, 1999, pages 1186-1187).

Regarding claims 1, 15, and 16, Wada teaches an optical transmission system (fig. 3) for transmitting an optical signal with an OCDMA code defined by a chip rate (page 1760, second column), comprising: an optical transmitter (Transmitter 1 in fig. 3) including a drive-signal-based encoder (the encoder of transmitter 1 in fig. 3) arranged to encode an optical signal (output of MLLD) with an electrical encoding signal (the payload data of 10 Gbit/s) at the chip rate (page 1760, second column), wherein the encoder is reconfigurable to provide a plurality of codes according to the encoding signal (page 1760, second column); a transmission link for conveying the encoded optical signal from the optical transmitter (the transmission link in fig. 3); an optical receiver (the optical receiver in fig. 3) comprising a grating decoder (the decoder in fig. 3) connected to receive the encoded optical signal from the input and configured to decode the optical signal as a matched filter to recognize one of the codes (page 1760, second column). Wada differs from the claimed invention in that Wada does not specifically disclose the decoder is a superstructure fiber Bragg grating decoder. Tsuda, from the same field of endeavor, teaches an optical data transmission system (fig. 2) with fiber Bragg grating encoder (AWG encoder, fig. 2) and decoder (AWG decoder, fig. 2). Therefore, it would have been obvious to an artisan at the

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time of invention to incorporate an arrayed waveguide fiber Bragg grating decoder such as the one of Tsuda for the decoder in the optical data transmission system of Wada in order to eliminate the interference and to promote the CDMA system capacity.

Regarding claim 2, Wada teaches the transmitter includes a modulator (EOM, fig. 3) and the encoding signal is an electrical signal (the 10 Gbit/s payload data signal) connected to the modulator (EOM, fig. 3).

Regarding claim 4, Wada teaches the modulator is an amplitude modulator (page 1759, first column).

Regarding claim 5, Wada teaches the modulator is an electro-optic modulator (EOM, fig. 3).

Regarding claims 6-7, Wada teaches the transmitter includes a fiber delay line (the delay lines in the encoder, fig. 3).

Regarding claim 9, Wada teaches the decoder additionally incorporates a filtering function to compensate for signal distortions (page 1762, second column, second paragraph).

Regarding claim 13, Wada teaches the decoder is configured to decode a spread-spectrum optical signal (fig. 5).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al. (Journal of Lightwave Technology, vol. 17, No. 10, October 1999, pages 1758-1765) in view of Tsuda et al. (Electronics Letters, Vol. 35, No. 14, July 8, 1999, pages 1186-1187) and in further view of Korotky et al. (US patent No: 5,477,375).

Regarding claim 3, the modified optical data transmission system of Wada and Tsuda differs from the claimed invention in that Wada and Tsuda do not teach the modulator is a phase modulator. Korotky teaches an optical transmission system (fig. 1), wherein the optical signals are phase modulated (18, fig. 1) and encoded (24, fig. 1). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical phase modulator such as the one of Korotky for the optical modulator in the modified optical data transmission system of Wada and Tsuda in order to produce constant amplitude phase modulated light signals.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al: (Journal of Lightwave Technology, vol. 17, No. 10, October 1999, pages 1758-1765) in view of Tsuda et al. (Electronics Letters, Vol. 35, No. 14, July 8, 1999, pages 1186-1187) and in further view of Naito et al. (US patent No: 5,228,043).

Regarding claim 8, the modified optical data transmission system of Wada and Tsuda differs from the claimed invention in that Wada and Tsuda do not disclose the transmitter includes an electrically driven laser source and the encoding signal is connected as a drive current to bias the laser. Naito teaches an optical transmission system (fig. 14), wherein the transmitter includes an electrically driven laser source (LD, fig. 14) and an encoding signal (71, 4, 3, fig. 14) that drives the laser (col. 11, lines 63-68). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical transmitter with a laser driver circuitry such as the one of Naito for the optical transmitter in the modified optical encoding system of Wada and Tsuda in order to provide a control signal that can directly modulates the light source.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Munroe et al. (US Patent No: 6,313,771) is cited to show an optical fiber Bragg grating (601, fig. 6A) that encodes an optical signal with a selected code based upon the relative phase shifts of the spatial variations in refractive index in the segments (603-605, fig. 6A) of the fiber (col. 7, lines 54-57).

13. Applicant's arguments with respect to claims 1, 15, and 16 have been considered but are moot in view of the new ground(s) of rejection.

Remark states Tsuda's filtering is performed in a decoder, and not in the encoder/modulator. However claim 16 does not recite filtering is performed in the encoder or decoder. Claim 16 recites a grating incorporating a filtering function to compensate for the distortion which is induced during modulation. Tsuda teaches such filtering function as it is recited in claim 16. Remark further states claim 16 has been amended to specify that the modulation is performed by encoding the optical signal with an electrical encoding signal. Tsuda teaches the modulation is performed by encoding the optical signal from the laser diode of fig. 2 with a 10 Gbit/s electric data encoding signal. Remark further states Tsuda further does not teach a passive fiber grating may be incorporated into an optical transmitter to compensate for the distortion caused by modulation. Claim 16 recites a superstructure fiber Bragg grating incorporating a filtering function to compensate for the distortion. Tsuda teaches such limitations by incorporating a filter and an AWG decoder, as it is shown in fig. 2. Applicant's attention is directed that during the prosecution of a pending patent application the terms found in the claims



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should be given the broadest reasonable interpretation, *See in re Pearson*, 181 USPQ 641 (CCPA 1974).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (703) 308-9063. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

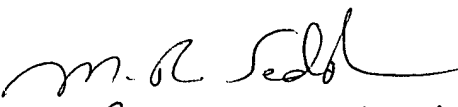
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

  
M.R. SEDIGHIAN  
Patent Examiner  
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